COPY

Project Name: Dry Creek Road ROW and Rattlesnake Quarry Reclamation			
Case number: WYW 168232 Cost code:		Project Leader: Kristin	Eplanning Number:
	Brief project description: Upgrade and re-align the Dry Creek Road (from Highway 135 to Natrona County Line) creating a Fremont County ROW and reclaim the Rattlesnake Quarry in the CFO.		
	Lease/unit number	Misc.	Start Date: 1/19/16
	DDA? Yes: Gas Hills	Legal: See map	
	What issue is the proposal addressing? Health and safety, improvement in public transportation system		Priority: High: work is scheduled for summer, 2016
	Tribal consultation/site visit? No	DDCT required? No	External scoping needed? No (scoping with AML and County has occurred)
	Related files		
	RMP Conformance? In LFO, yes. The CFO RMP designated the Rattlesnake Quarry as VRM Class II. Jared indicates that because the contrast will be reduced, the Rattlesnake Quarry should meet VRM Objectives. The VRM II rating had been predicated on an earlier CFO EA authorizing the quarry that assumed that the quarry would be reclaimed to VRM II objectives.		Kristin/Karina

	Resource/use	Specialist	Signature
	Air resources/Climate	Kristin	
	Geology/Cave-Karst	Tom	
	Soil	Tom	
	Water	~~Lara~~ Kristin	
	Minerals	Kristin	
	Fire and Fuels		
	Vegetation		
	Riparian areas		
	Weeds	Jeremie	5/10/16
	Wild horses	N/A	
	Wildlife/Special Status	Lara/Tim	
	Cultural	Craig	5/10/16
	Visual Resources	Jared/Kristin	
	Realty	Kristin	
	Livestock Grazing	N/A	
	Recreation	N/A	
	Social/Economic/EJ	N/A	
	Health and Safety	Kristin	
	Maps	Sarah	5/9/16
	Document Review	Ben	
	Assistant Field Manager		
	Action Taken:	End Date:	NEPA log update:

Environmental Assessment for the Dry Creek Road Relocation and the Reclamation of the Rattlesnake Quarry

Aerial photo of the Rattlesnake Quarry

May 2016

BLM

ENVIRONMENTAL ASSESSMENT

DOI-BLM-WY-R050-2016-0004-EA

Title: Dry Creek Road Environmental Assessment

Type of Project: Right-of-way, free use permits, and quarry reclamation

General Location of Proposed Action: 6th PM, T 33 N, R 90 W Fremont County, Wyoming,

Name and Location of Preparing Office:

Lander Field Office, 1335 Main Street, Lander, Wyoming 82520

Lease/Serial/Case file number: WYW 168232, WYW 158628, WYW168629

Applicants' Names:

Fremont County and Wyoming Department of Environmental Quality, Abandoned Mine Lands Division

Chapter 1

1.1 Background Information

This EA will consider the environmental impacts of two connected actions: the upgrading of the Dry Creek Road to become part of Fremont County's road transportation system (right-of-way). And the removal of material and eventual reclamation of the Rattlesnake and Pathfinder Quarries under two free use permit. The locations involved in this project are shown on Map 1.

Dry Creek Road:

The Dry Creek Road upgrade proposal is for a perpetual right-of-way to Fremont County to extend Fremont County Road #10 to connect the existing Fremont County Road #5 from Jeffrey City to the Natrona County road system at the Fremont/Natrona county line. Once upgraded, the road will be called the Dry Creek Road. The existing 7.5 miles of road from the end of Highway 136 where it meets Fremont Road #5 in the Gas Hills to the Natrona County line is referred to as the "no man's land road" and was originally constructed in the 1950s to support transportation and hauling of ore and materials throughout the Gas Hills during the uranium boom. (The no man's land road and the proposed reroute are shown on Map 1; existing county roads are shown on Map 3.12-1 from the Cameco *In Situ Recovery* Uranium EIS attached to this EA as Map 2). Because the no man's land road was constructed prior to modern reclamation laws, there is no responsible party for its reclamation or maintenance and it has deteriorated to the point of becoming unsafe. The lack of responsible party triggers an opportunity for Wyoming Department of Environmental Quality, Abandoned Mine Lands Division (AML) to financially assist in reclamation.

Fremont County proposes re-constructing approximately 6 miles of the existing road to meet Fremont County and BLM road standards (crowned and ditched with gravel surface and engineered drainages) and constructing approximately 1.5 miles of new road (primarily overlapping previous disturbance) that re-routes the road around proposed uranium mines. , Fremont County will implement a temporary traffic control plan to accommodate road users during construction. Permanent signage and other traffic control will conform to applicable County rules and regulations. Maintenance of this road will be assumed by the County and will occur as the County determines necessary.

Cameco Resources currently has an agreement with the County to complete additional road maintenance in the event that it begins mining activities in the Gas Hills. These obligations are addressed in the Interagency Agreement described below. Cameco is also contributing detailed engineered drawings for the relocated road, completed by a licensed civil engineering firm with extensive experience in the Gas Hills area where the road is located.

Rattlesnake Quarry:

In 1999, the BLM Casper Field Office issued a decision approving Umetco Minerals' Plan of Operations to quarry material from the Rattlesnake Quarry to cover the Umetco East Gas Hills Tailings Facility, a remnant of uranium mining and milling occurring decades ago. Covering the mill tailings was required by federal law; see the 1999 Decision Record (1999 DR) available in the document tab of this project's webpage. The 1999 DR included requirements to treat the resulting highwalls to make them less visible, a staining process that makes the newly mined surfaces look more weathered and contrasting less with the surrounding landscape. Umetco provided a bond to the Wyoming Department of Environmental Quality (WDEQ), Land Quality Division (LQD) in the amount of approximately $380,000 to complete this work.

Umetco quarried material from the Rattlesnake Quarry from 1999 to 2003. When this work was completed and reclamation in naccordance with the 1999 Decision should have been started,Umetco stated that it did not have the financial resources to complete reclamation responsibilities beyond its $380,000 bond amount (personal conversation with Jeff Swanson, February, 2016). Umetco, LQD and the WDEQ Abandoned Mine Lands (AML) all agree that the $380,000 bonded amount is insufficient to complete the reclamation to the degree required by the 1999 DR. The BLM does not have the expertise to make an independent determination of the cost of abandoned mine reclamation and defers to the expertise of AML which has decades of experience with this issue in the Gas Hills area.

After considerable negotiations regarding financial responsibility for the road, WDEQ, Umetco, Fremont County, Power Resources Inc, dba Cameco Resource (Cameco), and Umetco entered in to an Interagency Agreement (IA) for the Dry Creek Road with an effective date of November 24, 2015; the IA is available in the document tab of this project site. As part of the IA, Umeto granted an easement to Fremont County for a right-of-way for Dry Creek Road to cross Umetco's private lands. A copy of the Easement is available in this project site's documents tab. The IA also addresses the respective responsibilities between LQD and AML; for purposes of this EA, the activities of both DEQ divisions will be jointly referred to as AML since AML is the requesting agency for the free-use permits for the Rattlesnake and other quarries prior to reclamation. The internal agreements between LQD and AML are not relevant to this EA.

The IA assigns responsibilities to all parties. Relevant to this EA is that AML assumed the responsibility to provide materials and financial support for use in the construction and rerouting of the no man's land road on BLM lands. AML agreed to accept Umetco's bond and to assume reclamation responsibility for the Rattlesnake Quarry at an estimated cost of $823,980. The AML did not agree to reclaim the quarry in the manner described in the 1999 DR. The issue of degree of reclamation is described more fully below in the Considered but Not Fully Analyzed section.

The Proposed Action was presented by AML as a means to reclaim the Rattlesnake Quarry to make it safer and less visually intrusive and to aid Fremont County in fixing the no man's land road. The two actions are related because Fremont County proposes to utilize material from the Rattlesnake Quarry, mixed with other material described in more detail below, for the upgrade and reconstruction of Dry Creek Road.

1.2 Purpose and Need for Action

The need for the right-of-way action is established by the BLM's responsibility under Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) to respond to a request for a right-of-way (ROW) grant and to ensure the activity protects the natural resources of public lands and prevents unnecessary or undue degradation. The BLM must also respond to requests for mineral materials (free use permits) such as AML's request for removal of the materials from the Rattlesnake Quarry, Pathfinder Quarry, and Umetco Clay Pit.

As is discussed below, both the existing condition of the Rattlesnake Quarry and the unimproved condition of the No-Man's Land present health and public safety issues on BLM lands that must be addressed.

1.3 Decision To Be Made

The Authorized Officer (AO) must determine whether or not to approve the right-of-way and thus grant authorization of the County road across public lands. The AO could decide not to issue a grant if it would cause unnecessary or undue degradation to the public lands or if it would threaten to violate another federal law. The AO must also make a determination to issue the free use permit to AML for material from the Rattlesnake Quarry, Pathfinder Quarry, and Umetco Clay Pit with the reclamation AML proposes to do.

If the AO decides to issue the grant, the AO must decide what stipulations would apply to the grant. Stipulations could include specification of construction, design, mitigation measures, and abandonment/reclamation activities for the proposed project area. As is described more fully in the Proposed Action, the AO would also approve the use of public lands for stockpiles of material from the Rattlesnake Quarry during construction.

Finally, the AO must determine whether or not the proposed action could result in significant impact to the human environment. If there is no significant impact, this determination would be documented in a Finding of No Significant Impact (FONSI.) If the impacts could be significant, an environmental impact statement analyzing those impacts would be necessary.

1.4 Relationship to Statutes, Regulations, Plans or Other Environmental Analysis

This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and complies with applicable regulations and laws passed subsequent to the Act. In addition, this EA is prepared utilizing the stipulations and format outlined in the BLM NEPA Handbook H-1790-1. The Proposed Action and alternatives would comply with relevant federal, state, and local regulations, plans, and policies. FLPMA authorizes the BLM to issue rights-of-ways (ROWs) over public lands to meet various public purpose so long as they are in the public interest (Title V of FLPMA, sec. 501 [43 U.S.C. 1761]).

The Regulations governing the BLM's ROW programs are found in 43 CFR §2800:

> It is BLM's objective to grant rights-of-way under the regulations in this part to any qualified individual, business, or government entity and to direct and control the use of rights-of-way on public lands in a manner that:
>
> (a) Protects the natural resources associated with public lands and adjacent lands, whether private or administered by a government entity;
>
> (b) Prevents unnecessary or undue degradation to public lands;
>
> (c) Promotes the use of rights-of-way in common considering engineering and technological compatibility, national security, and land use plans; and
>
> (d) Coordinates, to the fullest extent possible, all BLM actions under the regulations in this part with state and local governments, interested individuals, and appropriate quasi-public"

1.5 Scoping, Public Involvement and Issues

Scoping

The right-of-way application was received by the Lander Field Office on August 21, 2015 and was considered complete in August, 2015. However, Fremont County asked the BLM to wait to prepare this EA until an agreement among the County, AML, Cameco, and Umetco had been reached. This occurred in November. The County provided a copy of the IA to the BLM in December, 2015.

Prior to the November IA, the BLM met on more than a dozen occasions with parties interested in the project including the parties to the IA the Fremont County Commissioners and local landowners and mineral claimants who had expressed interest in the road project. Approximately tensite visits were conducted. The proposed route modification was discussed extensively in the Environmental Impact Statement for the Cameco uranium mine the BLM approved in 2014. In addition, several public scoping meetings were held for the Cameco project during which the proposed road re-location was discussed. These meetings are described in the Cameco project webpage, available online at: http://www.blm.gov/wy/st/en/info/NEPA/documents/lfo/gashills.html.

Because of the extensive public involvement both for the road and the Cameco project and the wide public support for reclamation of existing disturbances to benefit health and safety and resource damage, the BLM determined that additional external public scoping was not necessary. Notification of preparation of this EA was also provided on the Wyoming BLM internet NEPA register on January 20, 2016. The BLM staff interdisciplinary team (IDT) reviewed the proposal and identified impacts and appropriate mitigation measures.

Issues Identified

The IDT in coordination with Fremont County and AML identified the following issues for analysis:

1. Health and Safety
2. Reclamation, re-vegetation, and weeds
3. Impacts to BLM sensitive species, riparian habitat and pronghorn antelope
4. Impacts to visual resources
5. Air Resources and Climate Change
6. Impacts to water resources
7. Impacts to greater sage-grouse

There are a number of resources and issues that the BLM typically addresses in NEPA documents which are either not present in this project, the impacts to those resources do not vary by alternative or stipulations can be applied which will mitigate the potential for adverse impacts under one of the alternatives, such as cultural and paleontological resources. Accordingly, they are not discussed in the body of this document but described in Appendix B hereto.

1.6 Land Use Plan Conformance

Typically, land use plan conformance is discussed in Chapter 1 of an environmental assessment. However, since one of the alternatives does not conform to the land use plan, conformance is discussed in Chapter 2 following the description of the alternatives.

Chapter 2: Alternatives

2.1 Proposed Action

The Proposed Action consists of Fremont County's right-of-way application for the Dry Creek Road and AML's Free Use Permits for the Rattlesnake Quarry, Pathfinder Quarry, and Umetco Clay Pit and proposed reclamation of the Rattlesnake Quarry.

2.1.1 Free use permit for material for road construction:

AML's requested Free Use Permits consist of processing existing stockpiles of material from the Rattlesnake and Pathfinder quarries (see Map 1) that would be mixed with Clay mined from the Umetco Clay Pit, and hauled to the specified material stockpile locations along Dry Creek Road for the County's use and for reclaiming both quarries. These materials are critical component for the upgraded and relocated road. The County's right-of-way application includes reconstructing the existing portions of the Dry Creek Road to meet acceptable standards and constructing a new portion of road to acceptable standards mostly through private lands using the material provided by AML. These activities will occur in sequence over approximately 8 months as described in Table 2.1; however, depending on weather and unforeseen issues, the schedule could occur over two years (AML completes work 2016, County completes work 2017). The details of this process are further described below and the locations of each of these individual projects are shown in Map 1, attached.

Table 2.1 Potential Schedule for Dry Creek Road Project

Event Description	**Party Involved**	**Start Date (estimated)**	**End Date (estimated)**
Process stockpiles at the Rattlesnake Quarry and haul material to Pathfinder Quarry	AML (contractor)	July, 2016	August, 2016
Mine material from Clay Pit and haul to Pathfinder quarry	AML (contractor)	July, 2016	August, 2016
Process material at Pathfinder quarry and haul portion to stockpile locations[1]	AML (contractor)	September, 2016	October, 2016
Reclaim Rattlesnake quarry	AML (contractor)	2017	2019
Reclaim Pathfinder Quarry	AML (contractor)	2017	2019
Construct Dry Creek Road	Fremont County (contractor)	October, 2016	2019

[1] It is possible that material will be directly deposited on the road without being hauled to stockpile locations. Direct deposit is cheaper but requires a more elaborate schedule. Since the proposal is to use the stockpiles as necessary, this analysis assumes that all will be used and reclaimed. If the stockpiles are not necessary, then the adverse impacts associated with that disturbance will be avoided and the proposed stockpile locations more quickly reclaimed.

2.1.2 Reclamation of the Rattlesnake Quarry

As discussed in the Introduction to this EA, the Rattlesnake Quarry was mined by Umetco Minerals between 1999 and 2003. Umetco has asserted that it does not have the means to complete any additional reclamation beyond the $380,000 bond amount and has tendered its bond to AML. AML will accept the bond tender and will contribute additional funding of more than $440,000 for quarry reclamation.

AML proposes that approximately 25,260 cubic yards (cy) of material of various classifications will be crushed and screened by AML on-site at the Rattlesnake quarry and transported to two different stockpile locations along the Dry Creek road to be used by the County, shown on Map 1. In order to crush and screen the existing stockpiles of material, AML will have one or two loaders load and dump material into a centrally located portable processing plant to mix, crush, and screen the material to the desired specifications. The material will be loaded into two or three large-belly dump trucks to be hauled to the storage locations. Instead of belly dumps, two to three off-highway haul trucks might be used that would haul larger loads but travel slower[2].

Assuming a load capacity of 20cy for a belly dump and 40 cy for a haul truck, 1,263 haul trips or 632 haul trips will be required to stockpile this material. Details of the material stockpiles and classifications at the Rattlesnake quarry are provided below in Table 2.2.

Table 2.2 Specifications of Existing Stockpiled material at the Rattlesnake Quarry

Stockpile Designation	Priority for Use	Description	Estimated Quantity (cubic yards)
R-4	4	30/70 blend (crush and screen)	1,500
R-14	5	1"-3" rock (crush and screen)	430
R-9	6	1"-3" rock (crush and screen)	870
R-10	7	1"-3" rock (crush and screen)	260
R-5	8	crushed not screened (screen)	17,000
R-3	9	1'-2' riprap (crush and screen)	5,200
		Subtotal	25,260
		Less 2500 cy rip rap to be left on-site	2,500
		Total for Rattlesnake Quarry Free Use Permit	22,760

Reclamation of the Rattlesnake quarry will occur after AML has completed gravel production and will consist of backfilling the highwall as far as possible and re-contouring the lower half of the quarry to re-establish two existing drainages that are currently blocked. AML will utilize the same approach to re-contouring the drainages as has been successfully employed in other reclamation efforts in the Gas Hills.

[2] AML may direct deposit the material on the road bed rather than in stockpiles. Since this approach would result in less disturbance, analysis of direct deposit is within the analysis of the stockpiled approach. Direct deposit would be less expensive than stockpiling and it is AML's desired approach but mining requirements may not produce material at a pace that could be direct deposited.

Following this work, AML may paint the remaining upper highwalls with appropriate stain/texture and plant trees on the benches in order to create an aesthetic surface for the upper half of the quarry. The AML's ability to complete this additional work is not certain because it is a function of funding, whether work on the upper reaches and benches could be conducted safely, and other factors that would need to be determined at the time. Since either approach may be followed, this EA assumes that aesthetic upgrades will not be completed.

Under the Proposed Action, access to the Rattlesnake Quarry will be limited with physical barriers placed across the access road (visible on the photo of the Quarry) and at the top of the Quarry. AML will evaluate the need for fencing at the top of the Quarry. As AML is recognized expert in making abandoned mines safe, the BLM will defer to AML's decisions as to whether a fence is necessary to protect people and animals in the area. This decision will be based upon the risk of the public coming upon a highwall unaware of the risk.

2.1.3 Pathfinder Quarry

The Pathfinder Quarry was mined by Pathfinder Mines between 1997 and 2001 to provide material for the reclamation of the Lucky Mc Mill Site so as to meet the specifications required to cover the tailings' facilities. Approximately 291,000 cubic yards of limestone were produced from the quarry during operations, and excess material was sold to WDEQ-LQD and AML for various reclamation activities and has remained on-site since 2001. AML plans to crush and screen material from three of the existing stockpiles at the Pathfinder Quarry for use on the road project. Crushing, screening, and hauling will occur in the same manner as described at the Rattlesnake Quarry. A total of approximately 10,840 cubic yards will be produced from the Pathfinder Quarry. Most of this material will be hauled directly from site to be used on the road, but some may be hauled to stockpile locations via belly dump or off-highway haul trucks. Total trips to haul this material would equal approximately 542 or 271 using the same assumptions described for the Rattlesnake Quarry. Details of the material stockpiles and classifications at the Pathfinder Quarry are provided below in Table 2.3.

Table 2.3 Specifications of Existing Stockpiled material at the Pathfinder Quarry

Stockpile Designation	Priority for Use	Description	Estimated Quantity (cubic yards)
P-1	1	2" minus (screen)	8,570
P-7	2	1"-3" rock (crush and screen)	720
P-4	3	2"-5" rock (crush and screen)	1,550
Total for Pathfinder Quarry Free Use Permit			10,840

After AML has completed crushing activities at the Pathfinder Quarry, AML will begin reclamation of the quarry. Reclamation will consist of removing or re-spreading any other stockpiled materials on site, re-contouring the site to remove roads and allow drainage from the quarry to the southwest (partially constructed already), and re-spreading stockpiled topsoil. If additional material is needed for use on the road, prior to completing reclamation of the site AML might strip the Pit floor which is covered in a layer of gravel. Additionally, prior to work on site, AML plans to remove existing old broken-down equipment and two trailers from the northern portion of the quarry.

2.1.4 Umetco Clay Pit

In order for the gravel to be an acceptable quality for use on the Dry Creek road, AML will need to mix the material with clay. This is particularly true of the material from the Rattlesnake Quarry that is presently very abrasive and has little soil or fine material. Mixing with clay will increase the Plasticity Index of the gravel and bind it together when spread and compacted on the road surface. Approximately 3,500 cubic yards of clay is needed for mixing. This material will be mined from a previously reclaimed Pit located approximately 2.5 miles north of the Dry Creek Road along West Canyon Creek (shown on Map 2). This reclaimed pit was previously mined by Umetco to provide material for use in the tailings cover cap in the late 1990s.

AML will re-develop a portion of this area by salvaging any available topsoil from the surface then stripping 3,500 cubic yards of Clay from the subsurface using scrapers and/or loaders. This material will then be hauled to either the Pathfinder or Rattlesnake quarry where it would be agglomerated with gravel prior to entering the crushing circuit. Re-disturbance at the Clay Pit will not exceed two acres, assuming a two feet mining depth, and will be re-claimed including full re-vegetation following removal of the material.

2.1.5 Stockpiles

Material to be used for road construction from the Rattlesnake and Pathfinder quarries will be hauled and stockpiled at two locations referred to as the Bull Rush and Hot Well stockpile locations; see Map 2. The majority of material that will be immediately used for road construction will be temporarily stored at the Pathfinder Quarry. Other material will temporarily be stockpiled and stored at the Hot Well location located along the proposed road re-alignment and the Bull Rush stockpile area located in an area that was previously disturbed by prior mining activities near the Bull Rush mine approximately eight miles to the west of the end of Highway 136. These stockpiles will be authorized as temporary use permits for four years although likely will be used for less time. Because these areas occur on existing disturbance, topsoil will likely not be available for salvage, but any available topsoil will be salvaged for use in reclamation. Berms or waddles will be installed in these areas during use to manage runoff. Reclamation will occur at the Hot Well location once stockpiles are removed, and the Bull Rush stockpile area will be contoured or bermed so as to manage any erosion that occurs on site will remain on site. AML is required to comply with the provisions of the State of Wyoming's Storm Water Discharge Program.

2.1.6 Dry Creek Road Upgrade

The proposed road is to be 7.57 miles in length of which 4.77 miles are on public lands. The County has an easement for the 2.20 miles of private land the road is proposed to cross.

The running surface of the road is proposed to be 24 feet wide for a total of 66.24 acres of disturbance. Most of the right-of-way will be 100 feet wide with some wider segments in places if necessary to allow for appropriate back slopes depending on the drainages and to accommodate side roads. The running surface will be covered with nine inches of gravel requiring a total of 31,000 cubic yards. Topsoil will be stripped from areas where the road is to be re-aligned or to accommodate equipment and will be replaced in these areas upon completion. Excess salvageable topsoil will be spread and seeded in ditched areas and along the road in areas not to be covered in gravel. Appropriate culvert designs meeting BLM and Fremont County standards will be completed where necessary for drainage or creek crossings. Some of these designs have been completed and are available in the BLM project file. The designs will be or have been designed by licensed engineers and approved by Fremont County's transportation experts to be adequate to withstand a 25-year flood.

Existing disturbed areas around the no-man's land section of the road will be reclaimed as the existing road is "brought in" or reduced to the 24-foot wide footprint described above. These reclaimed areas will be graded suitably to cause precipitation to flow away from the road and will be seeded in accordance with approved seed mixtures. Reclamation will occur as soon as possible after construction is completed. Reclaimed areas will be prepared to improve re-vegetation success and seeding will occur at the time (spring or fall) most likely to result in reclamation success.

The Proposed Action does not include any reclamation of the existing disturbed area that is being abandoned by the new re-route. AML has determined that, based upon the information currently available, this section of road is not eligible for AML funding. In addition, AML's priority is to address existing damage that is a threat to human safety. By providing a properly engineered route that can be maintained by Fremont County to their standards (which meet or exceed BLM Gold Book Standards), the safety threat presented by the existing road will be averted. The Proposed Action includes minor earthwork including the placement of rocks and signage to deter use of the existing road where the new route diverges from the existing location.

The BLM expects that over time, the BLM will include some soil work and minor reclamation efforts to restore riparian function and to limit erosion from the existing route (described below under the No-Action Alternative) and gradual re-seeding as funding allows. However, since the abandoned road would be used as a haul road if any of the existing uranium claims develop into mines, the BLM does not intend to invest extensive reclamation efforts to the existing route. As described below in mitigation measures, the BLM will separately evaluate the benefit of improving the flow of water in existing drainages that may be blocked by the section of the existing road. Before any work on the existing road, the BLM will conduct additional NEPA analysis. The Proposed Action does not commit AML to comply with the 1999 DR's reclamation plan. AML is constrained by available funding and the need to prioritize work to improve safety over aesthetics. For purposes of this EA, the type of reclamation AML will perform assumes that some non-safety related reclamation may occur but also that they may, and addresses the impacts associated with each approach. AML fully investigated completing the

proposed reclamation plan (see Schematics in AML's Preconstruction Report, available in the Documents tab). Umetco's removal of material left much narrower benches with steeper highwalls than expected. In order for the new reclamation to conform to the 1999 design, substantial additional material would need to be mined from the site (in excess of 200,000 CY) increasing the area of high contrast disturbance. In addition, the mined material would have to be removed and stored or placed in some new location, resulting in additional disturbance. The weight and volume of the new material that would need to be mined makes shipping to any location outside the immediate area extremely expensive and impractical.

2.1.7 Best Management Practices and Design Features

All parties involved in completing work for this project, which will mostly consist of contractors hired by the County and AML, will implement best management practices and follow all applicable rules and regulations to minimize impacts. The following practices will be followed and are applied to the authorization as stipulations:

- Each agency or contractor will obtain and follow a Wyoming DEQ General Permit for Storm Water Discharge that will include measures to manage any erosion and prevent sedimentation in nearby drainages during construction. Reclamation will begin as soon as construction is completed.
- Fall seeding will be completed after September 1, and prior to ground frost. Spring seeding shall be completed after the frost has left the ground and prior to May 15. Fall seeding will occur if possible to take advantage of winter precipitation. Seeding will be repeated if a satisfactory stand is not obtained. Note: while timing stipulations for the protection of greater sage-grouse are applied for those portions of the project area within two-miles of leks, the BLM typically allows exceptions to timing stipulations to improve seeding success; see below under greater sage-grouse.
- Seed mixes will be approved by the BLM prior to their use.
- The BLM will review and approve the reclamation plans for the Pathfinder and Rattlesnake Quarry.
- Each agency or contractor will comply with the existing Memorandum of Agreement with the Wyoming Department of Quality, Air Quality Division which will prevent adverse impacts to air quality by the project.
- If alternative locations for the proposed stockpiles, equipment, supplies, and other materials are required, they would be located over 500 feet from West Canyon Creek, mapped and field identified riparian- wetlands and associated corridors, and away from known or discovered important habitats for BLM sensitive species (e.g. prairie dog colonies, raptor nest locations, etc). Alternative staging locations would be determined in consultation with a BLM natural resource or rangeland manager specialist and the site must be cleared by a BLM archaeologist. Since the project is located in the Gas Hills Designated Development Area (DDA), the stockpiles could be located within 500 feet from West Canyon Creek if the BLM determines that a lesser distance will provide appropriate riparian protection (Decision 4031). All alternative stockpile locations will be located within the Lander Field Office portion of the project.

- The culverts needed where West Canyon Creek intersects the proposed road alignment will allow connectivity, safe passage of several special status and other wildlife species, and to provide opportunity for water to flow and vegetation to exist within historic natural variability. The road crossing will be at right angles to ephemeral drainages and stream crossings
- The road is designed to an appropriate standard, no higher than necessary, to accommodate their intended purpose.
- The County will establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at appropriate speeds.
- Dust abatement practices are required for roads and stock pile pads.
- Restoration objectives are designed to meet sage-grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plan such that goals and objectives are to enhance or restore sage-grouse habitat

2.1.8 Wildlife Biologist Consultation

The following requirements will be coordinated and/or conducted by the BLM LFO Project Biologist commencing prior to implementation:

- Annually survey for raptors, especially ferruginous hawk, golden eagle, and burrowing owl, at known historic nest locations and suitable habitat, to the best of the agency's ability. Surveys would need to be conducted during the breeding season appropriate for detecting those species. If positive detection or signs of breeding are observed, the timing limitations of the raptor stipulation required by Lander RMP Decision 4071 (and similar stipulations in the Casper RMP would apply, unless otherwise recommended by the project BLM LFO Biologist based on field observations. Project proponents could apply for an exception to the timing limitations in the event that nests become inactive or if the young chicks have fledged. .Since the project is within a DDA, review of the exception request for greater sage-grouse and big game would be expedited and exceptions would be routinely granted subject to other RMP decisions. Species covered by the Migratory Bird Treaty Act and similar protections exceptions are not expediated.
- Before utilizing a site for a stockpile location, particularly the one closest to West Canyon Creek, survey known white-tailed prairie dog colonies to determine the current status.. Positive surveys would require that the stockpile be relocated as required by RMP Decision 4092 unless otherwise recommended by project BLM LFO Biologist based on field observations or unless the AO authorizes an exception. Stockpile locations will not be located in Natrona County or on lands managed by the Casper Field Office.

2.2 Alternatives Considered But Not Analyzed in Detail

Upgrading the existing road in its current alignment without a re-route of the northeastern portion of road was an alternative considered but not analyzed in detail. This option would eliminate 1.5 miles of newly constructed road and approximately 20 acres of disturbance (mostly on private surface) as well as fix a deteriorating road rather than abandon it with no responsible party for reclamation. The BLM has exhaustively pursued this option, but repeated efforts at moving this option forward have been fought by the mining claimants with an interest in mining through the existing road at an area referred to as Rock Hill. This option was further denied when the Wyoming Business Council provided funds to the County for the project only if the southern, re-routed road is constructed. However, because of the funding constraints requiring the use of the proposed route, upgrading the existing route was not an option and this alternative was eliminated.

The re-routed section of road that avoids the Rock Hill area was selected as the most advantageous route because it limits potential impacts by overlapping existing roads with previously disturbed routes. The County, which will assume maintenance and repair obligations for the new Dry Creek Road, has determined that the proposed engineered road will meet County standards without being asphalted or provided with an impervious surface. In addition, there was not funding by any party to the IA to pay for an asphalted surface.

The BLM evaluated whether an alternative existed that would allow the BLM to compel either Umetco or AML to complete the Rattlesnake Quarry reclamation to the 1999 DR evaluated standards and approaches. Such an approach would likely improve the appearance of the quarry following reclamation and thus reduce the adverse impacts to visual resources that currently exist. The BLM concluded that no practical and legal method is available to compel Umetco to take steps beyond its bond. The BLM has no Umetco bond and there are no other bonds in addition to the $380,000 bond held by AML. This bond was determined by the BLM in 1999 to be adequate under BLM regulations.

2.3 No Action Alternative

Under the No Action Alternative, the BLM would deny Fremont County's ROW application and would not issue Free-Use Permits to AML. The only connecting route for Highways 135 and 136 to Natrona County would continue to be the unimproved, degraded existing road along the no man's land route. The existing slightly downward resource trends, described below in the Affected Environment, would continue. Based upon existing funding and workload and the possibility that existing uranium claims through which the existing road passes might be developed, the BLM assumes that the BLM would not make any improvements to the existing road. The BLM assumes that the existing road would not be used as a haul road in the reasonably foreseeable future since the mining company holding the claims withdrew its Plan of Operations for a uranium mine (see the following location on the BLM's webpage: http://www.blm.gov/wy/st/en/info/NEPA/documents/lfo/LowerGasHillsConvMine.html,)

The No-Action Alternative also assumes that no reclamation of the Rattlesnake Quarry would occur in the foreseeable future. AML's proposal is to use material from the Rattlesnake Quarry as road base for a re-routed Dry Creek Road. AML does not have plans for a different type of reclamation of the Rattlesnake Quarry, and, while it is possible that at some point reclamation would be done, AML would have no reason to prioritize the expenditure of the type of funding described in the IA if the material could not be productively used to upgrade the road.

Under the No-Action Alternative, the Pathfinder Quarry would not be reclaimed and the Umetco Clay Pit would not be re-disturbed or reclaimed.

2.4 Comparison of Alternatives

Table 1: Table for Comparison of Alternatives.

Feature/Resource	Proposed Action	No-Action Alternative
Length of road	9.74 miles	
Width of road	24'	40-60'
Disturbance	66.24 acres	
Material from Umetco Clay Pit	3,500 cy newly mined	0
Material from Pathfinder Quarry	10,840 cy stockpiled material	0
Material from Rattlesnake Quarry	22,760 cy stockpiled material	0
Safety Resources – Dry Creek Road	Greatly improves safety to road users	Safety risk continues and will worsen as road conditions worsen.
Safety Resources-Rattlesnake Quarry	Safety will improve. Public exposure is limited.	Quarry will remain dangerous but public exposure is limited
Reclamation, re-vegetation, and weeds	Meaningful improvement to current condition. Road width is reduced and erosion from existing road will be reduced as access to the road is limited. Fremont County will assume an obligation to spray for weeds.	Current conditions will continue in a downward trend
Special Status Species, riparian areas, and pronghorn.	No meaningful adverse impacts to theseresources. Properly engineered road will reduce erosion and improve water flow through new culverts	Current minor downward trend will continue with limited adverse impacts to wildlife. Increased storm events associated with climate change may increase erosion.
Visual resources	Minor reduction in contrast associated with the Rattlesnake Quarry. More meaningful reduction in contrast associated with the road.	The Rattlesnake Quarry's contrast with the surrounding landscape will continue. The contrast associated with the road will increase as the road width continues to expand but there are relatively few visitors to observe this downward trend.

Feature/Resource	Proposed Action	No-Action Alternative
Air resources and climate change	Increase in fugitive dust associated with construction and crushing activities. These will be limited by the application of rules required by the State of Wyoming Air Quality Division. The upgraded road will be engineered to be more resilient to storm events.	No increase in fugitive dust. The existing road, including the two sections that cross through drainages, will continue to degrade and be less resilient to increased frequency of summer storm events. Increases in erosion from these storms will likely result.
Water Resources	Reestablish two ephemeral drainages through reclamation of the Rattlesnake Quarry. Decrease long term erosion and sedimentation to adjacent perennial and ephemeral drainages by creating a stable and maintained road surface. Increase short term erosion and sedimentation potential during construction activities within ephemeral drainages.	Continued blockage of ephemeral drainages in the Rattlesnake Quarry. Continued erosion and sedimentation in ephemeral and perennial drainages adjacent to the No Man's Land Road. No potential for short term increases in erosion or sedimentation during construction.

2.5 Conformance with Land Use Plans

2.5.1 Proposed Action

The Proposed Action conforms to the 2014 Lander Record of Decision and Approved Resource Management Plan and the 2007 Casper Record of Decision and Approved Resource Management Plan as amended. The proposed road is in areas open to linear ROWs. No new disturbance is expected outside of areas that have been previously disturbed and the Proposed Action would result in a reduction of existing disturbance as a result of narrowing the road width. The Proposed Action meets LFO Objectives SR 3.1 and 3.3 of the RMP as well as LFO RMP Decision 8005 to cooperate with AML to achieve reclamation of abandoned mine lands and Decision 8004 to cooperate with partners such as Fremont County to leverage funding to facilitate the AML program. The Proposed Action is in conformance with Management Goal 10 and Decision 8001 regarding supporting the local county and community plans regarding socio-economic conditions and promoting the economic stability of local communities. CFO's RMP has similar objectives and management decisions for limiting disturbance, reducing duplicative or unmaintained roads, and cooperating with AML.

2.5.2 No-Action Alternative

The No-Action Alternative does not conform to the Lander and Casper RMP Goals, Objectives, and Decisions identified for the Proposed Action. The No-Action Alternative does not conform to the Wyoming Standards of Health Rangelands (SHR), described below in Chapter 3, because the BLM is charged with management public rangelands to make meaningful progress towards the SHR and the current resources trends do not do this.

Chapter 3 Affected Environment and Environmental Impacts

The affected environment is the current condition of the environment for those resources that will be impacted by either of the alternatives. If the impacts by both alternatives are the same, that resource is not described; see Introduction and Appendix C.

This chapter characterizes the resources and uses that have the potential to be affected by the proposed action, followed by a comparative analysis of the direct or indirect and cumulative impacts of the alternatives. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. The BLM NEPA Handbook does not require that impacts be divided into direct or indirect effects as both are evaluated by the Authorized Officer.

Cumulative impacts result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions. If there are no direct or indirect impacts to resources then there is no need to analyze cumulative impacts.

3.1 Air Quality and Climate

Air Quality:

While the climate and meteorology of the area is typically described in the affected environment, the BLM determined that this information does not contribute to informing the public or the Authorized Officer regarding the impacts of the alternatives. Climate and meteorology (weather) for the Gas Hills area was described in detail beginning in section 3.1.1 of the Environmental Impact Statement for the Gas Hills In-Situ Recovery Uranium Project (Gas Hills EIS). A Record of Decision on that project was released in 2014. Documents for that project area available online at: http://www.blm.gov/wy/st/en/info/NEPA/documents/lfo/gashills.html. See Appendix C for additional information on air quality. The BLM determined that the differences in impacts to air quality under each alternative was not meaningful and that the regulations and permitting required by the DEQ Air Quality Division (AQD) would limit air quality impacts under the Proposed Action so as to make description and analysis in this EA necessary.

Climate Change

Greenhouse Gases (GHGs) including CO2; methane; nitrous oxide (N2O); water vapor; and several trace gas emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the Earth back into space. Science recognizes that such GHGs are essential to the formation and continuation of life on the planet, since global warming has produced the conditions conducive to allow the existence of all living things on the Earth. Science also has identified some potentially unwanted impacts of human activities on global climate. Vulnerabilities to climate change depend considerably on specific geographic and social contexts.

Although climate-changing pollutant levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources caused CO2 concentrations to increase from a pre-industrial value of about 280 ppm to 379 ppm in 2005. Preliminary figures from the National Scripps Institution of Oceanography indicate that in January, 2015, CO2 had increased to slightly in excess of 400 ppm. This increase is likely to contribute to climatic changes that may be disruptive to present plant, animal, and human communities. For example, increasing CO2 concentrations may lead to preferential fertilization and growth of specific plant species, likely favoring non-native invasive species such as annual grasses including cheatgrass over native, more nutritious species; see below under Weeds.

The Intergovernmental Panel on Climate Change (IPCC) has completed a comprehensive report assessing the current state of knowledge on climate change, its potential impacts, and options for adaptation and mitigation. According to this report, global climate change may ultimately contribute to a rise in sea level, destruction of estuaries and coastal wetlands, and changes in regional temperature and rainfall patterns, with major implications to agricultural and coastal communities. The IPCC has suggested that the average global surface temperature could rise 1 to 4.5°F in the next 50 years, with significant regional variation. There are uncertainties regarding how climate change may affect different regions. Computer models indicate that such increases in temperature will not be equally distributed globally, but are likely to be accentuated at higher latitudes such as the Gas Hills area. Also, warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures (IPCC 2007).

The analysis of the regional climate impacts prepared by the U.S. Global Change Research Program (2009) indicates that average temperatures have increased throughout the region with relatively cold days becoming less frequent and relatively hot days more frequent. The observed increase is largely the result of the warmer nights and effectively higher average daily minimum temperatures at many of the sites in the region. The analysis projections show continued increases in temperature over this century. The U.S. Global Change Research Program report projects an increase in preciPitation in the central and northern portions of Wyoming, although with substantial variability in inter-annual conditions.

For central Wyoming the projections range from approximately 10 to 20 percent increase in annual preciPitation but this is likely to come as more frequent storm events, particularly summer storms resulting in increased water flow at higher volumes than was previously experienced. Winter preciPitation is expected to be lower and to melt off earlier and faster with increasing early spring melt off. This change in preciPitation pattern is likely to increase the erosive effects of high water events and accelerate soil and vegetation loss. Changing climate is likely to increase wind erosion associated with disturbed soils which will likely result in more degraded riparian areas. Climate change is expected to favor annual grasses such as cheatgrass over native vegetation species which provide more nutrients for wildlife.

3.1.1 Proposed Action Impacts to Climate Change

The Proposed Action will have a temporary adverse impact on climate change in that construction activities, mine reclamation, material crushing and vehicular emissions will increase during operations. Upon completion of reclamation and road construction, in approximately four years to be conservative, the effects of the Proposed Action will be beneficial and will continue to increase until reclamation if fully successful. The long term benefit to reclamation of currently disturbed lands will improve the area's climate resilience to changing weather patterns. Flooding is likely to be reduced with increased vegetation. Intact soils held in place by vegetation roots are typically able to keep more water on the ground for longer time improving water absorption.

The Proposed Action will result in temporary emissions of CO2 and other GHG associated with internal combustion equipment. As discussed in Appendix C, these emissions will be limited through AQD regulations.

Cumulative Impacts:

The cumulative impacts area of analysis (CIAA) to climate change is the area within a 20 mile range of the project area. This distance was determined to be reasonable because the average wind speed in the area was 11.7 mph (WRCC 2011) indicating that GHG emissions and fugitive dust would likely disperse within something less than 20 miles. Since there is little seasonal variation in wind speed (averaging from a low of 8.9 mph to a high of 15.1 mph) there was not need to have a different CIAA for different seasons although use of the area during the winter is infrequent due to remoteness.

The BLM did not identify any foreseeable activities in the CIAA that would likely result in impacts to climate resources. The BLM has authorized Cameco to develop and operate an *in-situ* uranium mine within the project area (see Map 1). However, Cameco has indicated that it has no current plans to construct and operate this mine within the four year construction timeframe of the Proposed Action (communications from Cameco, February, 2016).

An existing but inactive bentonite mine is located within the CIAA within less than three miles of the project. However, the BLM does not anticipate that mining or reclamation activities are reasonably foreseeable within the next four years. Even if either event were to occur, the GHG emissions and fugitive dust associated with those activities would be relatively limited and short term in duration. Accordingly, the BLM determined that these somewhat speculative impacts would not meaningfully increase the minor and temporary adverse impacts from the Proposed Action.

Livestock grazing is a known contributor to greenhouse gases globally because domestic cattle produce methane that is released to the atmosphere. Over-grazing of existing vegetation reduces the ability of the soil to sequester carbon and likely increases the vulnerability of the area to wind and water erosion. While current standards assessments have not been completed for the rangelands near to the project, they will be completed within the next few years. At the present time, the BLM has not determined if over-grazing is present in the CIAA and whether or not a change in livestock grazing management needs to occur. All public lands in the vicinity of the project area are open to livestock grazing.

Because information regarding the current rangeland health status is limited and GHG emissions from the relatively small number of cattle currently grazing in the area are inconsequential on a landscape basis, the BLM determined that impacts from current livestock grazing are too uncertain to analyze as a cumulative impact.

Mitigation: In order to limit adverse impacts of the Proposed Action, the BLM identified the following mitigation:

- During dry periods, all appropriate measures shall be taken to control fugitive dust. These measures may include, but are not limited to, the application of water as a dust suppressant. If water is utilized during construction, such as for dust abatement, the source of the water will be from a permitted source that is outside of the Platte River drainage.
- The emission of fugitive dust will be limited by all persons handling, transporting, or storing any material to prevent unnecessary amounts of particulate matter from becoming airborne.
- All internal combustion equipment will be kept in good working order.
- All contractors will comply with all applicable local, state, tribal, and federal air quality laws, statutes, regulations, standards, and implementation plans, including Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS).

The BLM did not identify any residual or irreversible impacts to air quality by the Proposed Action

3.1.2 No-Action Alternative Impacts to Climate Change

Adverse impacts to climate change under the No-Action Alternative will continue as the area of disturbed soil with no vegetation will continue to increase resulting in increasing fugitive dust caused by vehicular use and wind erosion. Because of the degraded current road conditions, motorists swerve outside of current disturbance as necessary to avoid saturated soils and mud that result from low spots and snow drifts. Overtime, these activities have increase the disturbed area and resulted in a widening of the road bed. As the road condition is expected to continue to degrade in the future, the loss of vegetation and increasing release of fugitive dust will increase. The project area's resilience to climate change is likely to decrease making the disturbed areas less likely to absorb water and increasing water-caused erosion. As with the Proposed Action, there are no meaningful cumulative impacts to climate change to be evaluated.

3.2 Soils and Vegetation

Soils

The project area is located entirely in Major Land Resource Area (MLRA) 34A, the Wyoming Basin. This area is surrounded on most sides by mountains with elevations ranging from 5,200 to 7,500 feet. Soils were formed in slope alluvium or residuum derived from shale or sandstone. Generally, the soils are well drained and calcareous. The dominant soil orders in this MLRA are aridisols and entisols. Aridisols form in an arid or semi-arid climate, and are well developed soils that have a very low concentration of organic matter. In contrast, entisols are considered recent soils that lack soil development because erosion or deposition rates occur faster than the rate of soil development. The average annual precipitation in this MLRA generally is 7- to 12-inches; although some portions of the MLRA experience a range of precipitation of 7- to 32-inches this is not typical for the Gas Hills area. Soil characteristics such as the susceptibility to erosion and the potential for re-vegetation are important to consider when planning for construction activities and stabilization of disturbed areas. These hazards or limitations for use are a function of many physical and chemical characteristics of each soil, in combination with the topography, aspect, climate, and vegetation. More information regarding specific soil types and their soil characteristics is available in Table 3.11-1 of the Cameco EIS.

The soils in the current road exhibit various re-vegetation limits including alkalinity, salinity, limited water holding capacity except in low areas that tend to be hydric (formed under conditions of saturation or ponding long enough to develop anaerobic conditions), limited topsoil depth and compression related to previous mine hauling and current vehicular traffic use. Prior erosion has reduced the topsoil needed to support reclamation vegetation. The soil quality of the current road is extremely poor and has limited reclamation potential particularly in those areas on a slope.

West Canyon Creek flows and is perennial up to where it intersects with the existing non-system route alignment. Field observations completed in March 2016 indicate that this existing route lacks a culvert or bridge. The lack of a culvert, bridge or other features appears to be causing the water to back up, artificially creating wetlands north of the existing route. Some seepage appears to be south of the existing route. In its present condition, the existing route prohibits safe passage and connectivity of wildlife species that utilize ephemeral and perennial drainages for movement as well as habitat. The wetlands and West Canyon Creek corridor are located between 150 to 270 feet approximately from the existing used route and the proposed route, and over 1400 feet from the proposed Clay site.

Vegetation

The project area is in the Wyoming Basin ecoregion which typically is dominated by grasslands and shrublands surrounded by mountains (Chapman et al. 2004). The pre-disturbance predominant vegetation in the area was mixed sagebrush grassland. A description of the types of vegetation that were found in the area originally is contained in the Cameco EIS in Section 3.13.1. The project area has been utilized as a haul road over decades of uranium development. Areas surrounding the road have been mined, mixing what little topsoil was naturally present with subsoils that are unproductive for vegetation. Much of the reclaimed areas near the project area were reclaimed in accordance with then applicable standards utilizing grasses, particularly crested wheatgrass. These grasses contribute little to restoring habitat but provide useful anchoring of the otherwise highly erosional soils.

The CIAA for soils and vegetation is limited to the area relatively close to the components of the project shown on Map 2. This is a smaller area than that described for the CIAA for Air and Climate Resources above and therefore has the same absence of any reasonably foreseeable cumulative impacts.

3.2.1 Impacts to Soil and Vegetation from the Proposed Action

The Proposed Action will, in the short term, adversely impact soil and vegetation by heavy equipment preparing the existing road for upgrade and removing existing vegetation on the no-man's land re-route. Any vegetation at the road material storage locations will be removed along with any topsoil resulting in adverse impacts. The earth movement equipment will result in fugitive dust that would cover surrounding vegetation with the potential of inhibiting plant growth until the settled dust is removed through wind or rain action. Although dust abatement efforts will be required as mitigation (see above under Air Impacts), in the Gas Hills area's windy, dry climate, these measures will be only partially successful.

Following construction of the new, narrowed road, the current adverse impacts to soil and vegetation will be reduced or eliminated. The reclaimed areas outside of the 24-foot road bed will be re-contoured to reduce erosion and wattles or other erosion controls will be employed. Disturbed areas will be seeded and monitored for reclamation. The disturbed nature of the soils, the limited reclamation potential, and the decades of extreme compaction make restoration of pre-disturbance vegetation condition unlikely since there is not sufficient funding to remove existing compacted soils, replacement with soils containing more carbon, and extensive reseeding. Reclamation success will be evaluated on the basis of achieving soil stability rather than whether brush components are re-established.

The Proposed Action will modestly improve soil and vegetation by limiting or eliminating erosion from the portions of the existing road that will be upgraded and will control erosion on the new section of road that follows an old route that had some healing due to disuse but is still subject to erosion. Since the Proposed Action will not reclaim the portion of the existing road that will be re-routed, little beneficial impacts to the soil and vegetation in that location will occur. However, the current trend of increasing adverse impacts will be slowed because future vehicular traffic will be diverted from the road. The benefits of the Proposed Action to soils and vegetation come from reducing current adverse impacts and not from improvements to these resources.

Following the completion of road construction, adverse impacts to soils and vegetation from the Proposed Action will continue on a much lesser scale during reclamation of the stockpile locations. Reclamation efforts may take a number of years to achieve success because of the limited reclamation potential of the previously disturbed soils and the climate. It is likely that pre-mining disturbance vegetation shrub components could take decades to become re-established although that necessary time depends on the viability of surrounding seed bed.

Reclamation of the Umetco Clay Pit and the Pathfinder Quarry in the short term will likely be grasses sufficient to protect soils from wind and rain erosion. It is likely that the brush vegetation component will take longer to be achieved, if at all.

The Rattlesnake Quarry will likely never be reclaimed to the pre-disturbance condition of soils and vegetation found in the surrounding areas. If the AML's budget allows for some planting of trees or vegetation in the reclaimed area, the vegetation will help additional re-vegetation to occur over a very long term basis (in excess of twenty years or longer). The primary benefit of this planting will be to reduce the visual contrast, discussed below under Visual Resources. If the budget does not allow for planting, then re-vegetation is unlikely to occur over any foreseeable time frame.

The adverse impacts associated with the Proposed Action's reclamation of the Rattlesnake Quarry will not result in further erosion or adverse impacts to surrounding soils and vegetation outside of the disturbed area. AML's Proposed Action is to stabilize the soils and rock material from erosion and movement. In light of AML's expertise in stabilization which has been shown through decades of work in the Gas Hills and similar areas, the BLM defers to AML's opinion that there will be no further adverse impacts to soils or vegetation in the Proposed Action's worse case.

For overall reclamation efforts, the following mitigation measures will be applied which will improve the likelihood of reclamation success and perhaps speed up reclamation:

- Surface disturbance is limited to areas currently disturbed including those sections of the new route location that have naturally re-vegetated.

- Interim reclamation shall be initiated on exposed soils on portions of the disturbance no longer needed for construction within one growing season of the time the disturbance is no longer needed.

- The contractors (whether of AML or Fremont County) are responsible for all erosion control resulting from surface-disturbing activities and are required to use appropriate erosion and sedimentation control techniques, including but not limited to soil fencing, riprap and matting and applying biodegradable mulch, netting, or soil stabilizers. The contractors will comply with all terms of their Wyoming Stormwater Permit.

- No vehicle travel, construction, or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support vehicles and/or construction equipment as determined by the BLM AO. Vehicle travel must be confined to the approved access road and construction or stockpiling areas.

- Surface-disturbing activities are prohibited during periods when the soil is frozen or when watershed damage is likely to occur.

- Prior to the application of topsoil and reseeding the Operator shall rip the soils to a depth of at least 12 inches to break up compaction unless a qualified soil scientist or reclamation expert concludes that a shallower depth is appropriate.

- All roads shall be constructed in accordance with the BLM 9113 Road Standards Manual and guidelines provided in the BLM Gold Book to prevent sediment movement off-site.

- Disturbed channel beds will be reshaped to their approximate original configuration.

- During interim reclamation, native plant species and natural re-vegetation are emphasized in the support of sustaining ecological functions and site integrity. Where reseeding is required, emphasis will be placed on using native plant species. Seeding of non-native plant species will be considered based on local goals, native seed availability and cost, persistence of non-native plants and annuals and noxious weeds on the site, and composition of non-natives in the seed mix.

- Inter-seeding, secondary seeding, or staggered seeding may be required to accomplish re-vegetation objectives. During rehabilitation or areas in important wildlife habitat, provision will be made for the establishment of native species, if determined to be beneficial for the habitat affected. Follow-up seeding or corrective erosion control measures may be required on areas of surface disturbance which experience reclamation failure.

3.2.2 Impacts to Soils and Vegetation under the No-Action Alternative

The current downward trend of soils and vegetation at the road, stockpile locations, and Umetco Clay Pit and Pathfinder Quarry described above will continue under the No-Action Alternative. Erosion along the road will continue and likely accelerate as the road widens due to vehicle use avoiding muddy areas and wind and rain erosion along the margins where vegetation is limited. Over time, the present gullying and rutting will become worse and less stable which will increase erosion.

The current modestly downward trend will continue under the No-Action Alternative although it is not anticipated that the adverse impacts will extend beyond a small area near the riparian-wetlands.

Under the No-Action Alternative, the soils and vegetation at the Umetco Clay Pit will remain stable since the existing vegetation will not be disturbed and may improve over time, although the vegetation potential of the Clay soils are limited. Some erosion at the Pathfinder Quarry may occur because existing vegetation is limited and no reclamation is planned. This erosion could adversely impact surrounding undisturbed soils and vegetation over time although these adverse effects would likely be limited in scope.

The No-Action Alternative will result in little change of existing condition at the Rattlesnake Quarry. The existing material that is stockpiled there could cause wind and rain erosion from the Quarry on to surrounding undisturbed areas. However, the material has few fines (see above description of the Proposed Action and the need to mix additional materials to the stockpiled material) and is relatively stable. The BLM's visual inspection of the surrounding area indicated that little erosion is visible. Since there will be no disturbance of existing condition under the No-Action Alternative, it is likely that the existing relatively stable condition of the Rattlesnake Quarry's soils will continue and result in neither beneficial nor adverse impacts.

3.3 Public Health and Safety

The existing condition of the no-man's land road and Rattlesnake Quarry's dangerous highwalls constitute public safety hazards. However, access to the Quarry is locked and would continue in the future, thereby limiting the risk to public safety. Under both alternatives, the quarry has limited risk to human safety although if anyone entered the area on foot, there is a potential for a dangerous fall.

Dry Creek Road

The road has degraded substantially as a result of motorized use causing both an expansion of the width of the road to avoid saturated soils and increasing ruts when the road is used during wet and muddy seasons. Dangerous cuts have developed which are difficult to detect when located at curves. Even when conditions are dry, the uneven road bed could cause loss of control or damage if existing holes are encountered.

The greater danger to the public posed by Dry Creek Road is the risk of travelers becoming stuck during winter and spring. The seven miles proposed for upgrading are located approximately 45 road miles from Riverton and 65 road miles from Casper, the only meaningful nearby population centers. The closest road where there is any reasonable likelihood of encountering vehicles is more than twenty miles away from the no-man's land road. Because of the degraded road condition and the tendency for snowdrifts to accumulate in low areas, becoming stuck in an extremely remote location away from other users is more than a moderate concern in any wet or snowy season. There are extensive areas without cell phone coverage. There are no travelers' services providing opportunities to purchase gasoline, food, or water.

DesPite warning signs along the road, motorists regularly attempt to use the road in unsuitable road conditions or its limitation for low-clearance vehicles. The BLM assumes this use will increase as travelers increasing rely on GPS-identified routes that do not provide warning about conditions. Both the BLM and Fremont County Emergency Services have been required to rescue stranded passengers some of whom relied on their GPS identifying the route including the no-man's land section as a viable alternative approach from Casper to Riverton.

Rattlesnake Quarry

While both the Umetco Clay Pit and the Pathfinder Quarry are not public safety hazards, the Rattlesnake Quarry's unreclaimed highwalls present serious danger to humans, wildlife, and livestock; see photograph on the cover of this EA. Although sections of the top rim of the quarry are fenced, it is possible to pass through the fences and come upon the dangerous condition unware. The remote location of the quarry makes emergency help unlikely.

3.3.1 Impacts to Public Safety under the Proposed Action

The Proposed Action will result in both short and long term, permanent benefits to public health and safety. The increasing danger caused by the degraded road condition will be halted, travelers warned of construction activities through Fremont County's interim signage, and, over time, the road hazards will be removed as the road is upgraded. While construction efforts will sometimes make passage difficult, Fremont County's contractors will manage travelers so as to limit delays and ensure safety. The long term benefits to users of the Dry Creek Road will be important and long lasting as the ROW to the County will require that the road be maintained in accordance with Fremont County's road standards (which meet or exceed the BLM's Gold Book standards.)

The risks associated with the existing condition of the Rattlesnake Quarry will be removed under the Proposed Action. The highwalls will be sloped back to a safe grade and the back-filling of the lower benches will further reduce danger. These benefits will be achieved during the construction phase and the reclamation is designed to be stable, ensuring that the benefits to public safety will continue in to the future.

Cumulative Impacts: Since the CIAA for health and safety impacts is limited to the project area, there are no reasonably foreseeable other impacts that need to be analyzed under cumulative impacts under either alternative.

3.3.2 Impacts to Public Safety under the No-Action Alternative

The No-Action Alternative will not change the existing downward trend of degraded road condition so the existing risk to public safety will continue and probably increase as the road surface becomes more rutted and washed out. It is likely that people will continue to become stuck far removed from population centers and other motorists.

The No-Action Alternative will not reclaim the Rattlesnake Quarry resulting in a continuing threat to the safety of recreationists, wildlife and livestock. The risk of injury associated with the highwalls is low because of the remote location but if any accidents occur they would likely be severe and unlikely to be discovered quickly.

3.4 Noxious Weeds and Invasive Species

Noxious weeds and invasive species have become a growing concern in the western U.S. based on their ability to increase in cover relative to surrounding native vegetation and exclude native plants from an area. The spread of noxious weeds has resulted in impacts to endangered native species, available forage for livestock and wildlife, and economic resources. They impact the ability of the BLM to manage for multiple uses, contribute to the loss of rangeland productivity, cause increased soil erosion, reduce native species diversity, cause loss of wildlife habitat and, in some instances, are hazardous to human and animal health and welfare. The Federal Plant Protection Act of 2000 (formerly the Noxious Weed Act of 1974) and EO 13112 of February 3, 1999, requires cooperation with state, local, and other federal agencies in the application and enforcement of all laws and regulations relating to the management and control of noxious weeds; this goal has been incorporated into the 2014 RMP. The BLM has established a goal that NEPA documents consider and analyze the potential for the spread of noxious weed species and provide preventative rehabilitation measures for each management action involving surface disturbance.

The State of Wyoming defines noxious weeds as weeds, seeds, or other plant parts that are considered detrimental, destructive, injurious or poisonous, either by virtue of their direct effect or as carriers of diseases or parasites that exist within the state, and are on the designated list (Wyoming Status, Title 11, Chapter 5, Section 102.a.xi). Noxious and invasive weeds are a threat to native ecosystems and biological diversity based on their ability to increase in cover relative to surrounding vegetation and exclude native plants from an area. In addition to the state designated list of noxious weeds, Fremont and Natrona Counties have declared weeds of concern specific to each county under the authority of the Wyoming Weed and Pest Control Act (WDA 2011). Table 3.13-2 in the Cameco EIS provides a list of designated noxious weed species and priority species as identified by the State of Wyoming, as well as Fremont and Natrona counties.

For the BLM, while the primary concerns are noxious weeds of concern identified by the State of Wyoming (BLM 2011b), a secondary concern is the control of invasive species (e.g., halogeton, henbane, and cheatgrass) that can impede successful reclamation and impact management of livestock, wildlife, and human activities. Cheatgrass in particular has been identified as a species of concern because of its role in increasing large scale wild fires and threatening greater sage-grouse habitat.

Weed treatment on public land is conducted by the land agencies in conjunction with the county weed and pest control districts (Wyoming State Weed Team 2003). These districts develop programs that include private landowners, other local entities and agencies, tribes, state and federal agencies, as well as collaborate which offers the best chance to protect natural resources from noxious plant invasions and improves the efficiency of their programs. The BLM works in close partnership and coordination with Fremont County Weed and Pest under a memorandum of understanding under which the BLM provides funding to support FCWP's inventory and treatment program. The recent emphasis of this program has been to control the spread of Russian knapweed. Accordingly, the disturbed areas in the Gas Hills that do not have weed prevention programs with operators, typically mineral developers such as the bentonite mine, are treated as lower priorities.

Within the greater Gas Hills area, Canada thistle, hoary cress (whitetop), and wild licorice have been observed. Canada thistle. Hoary cress and wild licorice have each been mapped in as occurring in one location near the project area. BLM personnel also have observed black henbane, Canada thistle, and spotted knapweed along the AML Road; see Map 4 showing 2015 inventory. Also in the vicinity of the project area black henbane, Russian knapweed, perennial pepperweed, Russian olive, salt cedar, white top and Scotch thistle also have been documented (PRI 2009). Cheat grass is present in the area. Under both alternatives, these mapped noxious species will be the focus of FCWP treatment.

The spotted knapweed is of particular concern given that it is currently found in only limited locations in the Gas Hills area, is a heavy encroacher into healthy rangelands, and is wind dispersed. Some of the mapped areas of spotted knapweed are within one-quarter mile of the western most stockpile at the Bull Rush reclamation area. Under either alternative, treatment of the mapped spotted knapweed is a high priority for both the BLM and FCWP. Cooperation with BLM, private land owners and Wyoming Office of State Lands and Investments for weed management plan will be necessary for proper noxious weed control. AML/Fremont County

Roads will be responsible for any weeds listed as designated and declared noxious weeds by the Fremont County Weed and Pest.

The BLM was not authorized to proceed with this EA until the winter of 2015-2016 when access roads were unpassable due to drifted snow and areas of saturated soils from spot snow melt. In addition, the presence of ground-covering snow made it impossible for the BLM weed specialist to conduct an adequate site inspection for noxious weeds. If the AO selects the Proposed Action, the authorization to proceed will include not only standard weed stipulations but also additional weed control stipulations developed by the BLM after completing a thorough site inspection. The Lander BLM Field Office Weeds Specialist must perform a weeds survey of the Bull Rush Stock Pile prior to the project due to its close proximity to known infestations of Spotted Knapweed and Leafy Spurge.

3.4.1 Impacts to Noxious and Invasive Weeds under the Proposed Action

The Proposed Action has the potential of spreading invasive species because of increased traffic, the use of earth-moving equipment, and the transfer of large amounts of road material from three different locations. The Proposed Action does not have any new disturbance but re-disturbance of 66.24 acres increases the potential for introducing new species brought in on vehicles or from the mixing of potentially contaminated soils. Surface disturbance and travel along the new route will involve soils that have been disturbed in the distant past but undisturbed recently. Invasive species could colonize new areas with minimal vegetation cover or those where reclamation success has not been achieved.

Over the long term, reclamation and improvement of soil and vegetation condition under the Proposed Action would benefit weed control. However, it is likely that the upgrading of the Dry Creek Road will result in heavier vehicle use. In addition, use of the road would likely commence earlier in the spring because the road was designed to limit the type of snow drifting that currently prevents travel. On balance, the Proposed Action is likely to result in an increase in noxious weeds resulting in minor to moderate adverse environmental impacts. However, by introducing Dry Creek Road to the Fremont County road system, the upgraded road and surrounding areas will benefit from the County's greater presence in the area and responsibilities for treating noxious weeds.

The Proposed Action will result in increased potential for the spread of invasive weeds in the Pathfinder Quarry and Umetco Clay Pit as well as in the stockpile locations. The BLM considers this risk to be high at the Bull Rush Stockpile because of the existence of spotted knapweed, an aggressive invasive species capable of causing serious degradation of rangeland resources.

Under the Proposed Action, Fremont County and AML will be responsible for managing all noxious and undesirable invading plant species in the ROW, including cheat grass and any other weeds species designated and declared noxious weeds by the Fremont County Weed and Pest .If noxious or invasive weeds are encountered, the BLM and/or the County Weed and Pest District would be consulted by AML/Fremont County Roads for suppression and control methods. A